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AMSAT News Service *ANS-172*
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The AMSAT® News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on https://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to: ans-editor [at] amsat.org <http://amsat.org>

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see: https://mailman.amsat.org/postorius/lists/ans.amsat.org/

2026 AMSAT Field Day Next Weekend!

It’s that time of year again; summer and Field Day! Each year the American Radio Relay League (ARRL) sponsors Field Day as a “picnic, a campout, practice for emergencies, an informal contest and, most of all, FUN!” The event takes place during a 27-hour period on the fourth weekend of June.

For 2026 the event takes place from 1800 UTC on Saturday June 27, 2026 through 2100 UTC on Sunday June 28, 2026. Those who set up prior to 1800 UTC on June 27 can operate only 24 hours. The Radio Amateur Satellite Corporation (AMSAT) promotes its own version of Field Day for operation via the amateur satellites, held concurrently with the ARRL event.

This year should be as much fun as last year since we have more than 10 transponders and repeaters available. For AMSAT purposes, a transponder on a satellite would count as two if you could do phone and CW. We count them by modes, not the satellite names.

Users should check the AMSAT status page at http://www.amsat.org/status/ and the pages at https://www.amsat.org/two-way-satellites/ for what is available in the weeks leading up to field day. To reduce the amount of time to research each satellite, see the current FM satellite table at https://www.amsat.org/fm-satellite-frequency-summary/ and the current linear satellite table at https://www.amsat.org/linear-satellite-frequency-summary/ .

If you are considering ONLY the FM voice satellites, there are ISS and SO-50. The congestion on FM LEO satellites is always so intense that we must continue to limit their use to one-QSO-per-FM-satellite. This includes the International Space Station. You will be allowed one QSO if the ISS is operating Voice.

It was suggested during past field days that a control station be allowed to coordinate contacts on the FM satellites. There is nothing in the rules that would prohibit this. This is nothing more than a single station working multiple QSO’s. If a station were to act as a control station and give QSO’s to every other field day station, the control station would still only be allowed to turn in one QSO per FM satellite while the other station would be able to submit one QSO.

The format for the message exchange on the ISS or other digital packet satellite is an unproto packet to the other station (3-way exchange required) with all the same information as normally exchanged for ARRL Field Day, e.g.:

W6NWG de KK5DO 2A STX
KK5DO de W6NWG QSL 5A SDG
W6NWG de KK5DO QSL

If you have worked the satellites on Field Day in recent years, you may have noticed a lot of good contacts can be made on some of the less-populated, low-earth-orbit satellites like AO-7, RS-44, AO-73, FO-29 and JO-97. During Field Day the transponders come alive like 20 meters on a weekend. The good news is that the transponders on these satellites will support multiple simultaneous contacts. The bad news is that you can’t use FM, just low duty-cycle modes like SSB and CW.

[ANS thanks Bruce Paige, KK5DO, AMSAT Director of Contests and Awards for the above information.]

Buying from Ham Radio Outlet? Add AMSAT’s *Getting Started With Amateur Satellites* to your order.
<https://www.hamradio.com/detail.cfm?pid=H0-019238> Available for $29.95 from HRO https://www.hamradio.com/detail.cfm?pid=H0-019238

2026 AMSAT Space Symposium & Annual General Meeting

The 44th AMSAT Space Symposium & Annual General Meeting will be held in Jacksonville, FL on October 8-11, 2026 at the Crowne Plaza Jacksonville Airport/I-95.

Registration details and Call for Papers will be coming soon.

To book hotel rooms online, click here: AMSAT Conference Rooms
<https://www.ihg.com/redirect?path=asearch&brandCode=6C&localeCode=en&regionCode=1&hotelCode=JAXAP&checkInDate=07&checkInMonthYear=092026&checkOutDate=11&checkOutMonthYear=092026&rateCode=6CBARC&_PMID=99801505&GPC=AMS&cn=no&adjustMonth=false&showApp=true&monthIndex=00>

Reservations can also be made by phone at 1-800-227-6963. The group code is AMS. The direct hotel phone number is 1-904-741-4404.

[ANS thanks AMSAT for the above information.]

The 2026 Coins Are Here! Help Support GOLF-TEE and Fox-Plus.
Annual memberships start at only $120.

[image: Presidents' Club 2026 Coin]
<https://www.amsat.org/join-the-amsat-presidents-club/>

*Join the AMSAT President’s Club today and help Keep Amateur Radio in

Space! https://www.amsat.org/join-the-amsat-presidents-club/
<https://www.amsat.org/join-the-amsat-presidents-club/>*

Satellites Are The New Fire Towers

The Bezos Earth Fund announced a $26 million grant for the nonprofit Earth Fire Alliance and its satellite-based wildfire detection program, Axios' Ben Geman reports.

The money — alongside support from Google and others — will help fund the launch of three FireSat satellites this summer.

The groups say they'll "provide wildfire monitoring at least twice daily over critical geographies, including a focus on the Amazon Basin — one of the most fire-vulnerable regions on Earth."

The funding is the largest-ever single philanthropic grant for wildfire detection, the groups say. They add that the program could help protect homes, communities and biodiversity — and cut CO2 emissions from wildfires by up to 10% annually.

Earth Fire Alliance's first three FireSats at a clean room in Mountain View, Calif. (Photo: Muon Space)

Wildfires are a major driver of deforestation, which worsens climate change. They accounted for 42% of tree cover loss in 2025, per World Resources Institute data.

The Earth Fire Alliance says it hopes to have dozens of satellites operating by the early 2030s that can "monitor every point on Earth every 20 minutes."

*[ANS thanks Axios for the above information. Read the full article at https://www.axios.com/newsletters/axios-pm-f6fe1278-52eb-43c8-8bfe-7a1fe85b1c56.html?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiospm&stream=top
<https://www.axios.com/newsletters/axios-pm-f6fe1278-52eb-43c8-8bfe-7a1fe85b1c56.html?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiospm&stream=top>]*

Announcing OrbitDeck

A new open-source desktop application called OrbitDeck brings the classic OSCARLOCATOR into the software age, pairing a faithful recreation of the beloved paper tracking aid with a built-in classroom of orbital-mechanics lessons. Written in Python and released under the MIT license, OrbitDeck runs on Windows, macOS, and Linux — including the Raspberry Pi — and is tracking-and-analysis software only; radio and rotator control are intentionally left to the excellent dedicated tools already serving that role.

OrbitDeck map screen (Image credit: Paul Stoetzer)

Longtime operators will remember the OSCARLOCATOR: a polar map overlaid with a rotating ground-track transparency that let you predict a pass with nothing but a pencil and a clock. OrbitDeck rebuilds that experience as an interactive on-screen OSCARLOCATOR. You drag the map to rotate the path-arc overlay across a polar or QTH-centered base map, watching the satellite's position and your station's footprint move in real time. A protractor-style rim with per-degree tick marks and longitude and azimuth labels frames the disc. You can drive the overlay live, position it by hand to any equator-crossing longitude, drag the marker along the arc to step through the minutes after the crossing, or seed it directly to your next visible

pass. A compact next-equator-crossings list is built in.

Crucially, OrbitDeck also closes the loop with paper. Any satellite — real or hypothetical — can be exported as a printable PDF OSCARLOCATOR, ready to drop onto a clipboard for portable, screen-free operating in the field or in the classroom.

That classroom focus runs throughout the program. A dedicated Learn section presents orbital mechanics across grouped, interactive tabs — Kepler's equal-areas law, anomalies and the vis-viva relation, nodal precession and sun-synchronous orbits, slant range and footprint geometry, Doppler tune-through, eclipse and beta-angle sunlight, a link-budget sandbox, and element-set aging — each with a live diagram you can manipulate rather than merely read. A printable "Orbits 101" handout rounds it out.

The standout teaching tool is the lab satellite. From within the OSCARLOCATOR simulator, you can invent a hypothetical bird and edit its orbital elements with sliders and entry boxes — altitude (with the period updating live), eccentricity, inclination, RAAN, argument of perigee, mean anomaly, and direct apogee and perigee control. The ground track, footprint, and range circle respond instantly, plain-language explainers describe the effect of every change, and a gallery of presets loads recognizable archetypes from ISS-like LEO to Molniya and geostationary. Design an orbit to a requirement, compare two designs side by side, then name and print your creation as an OSCARLOCATOR exactly like a catalog satellite.

OrbitDeck reads modern GP/OMM data, ships its own SGP4 propagator and an offline catalog so it works without a connection, and is free to download. It is an inviting on-ramp for newcomers and a genuinely useful operating and teaching aid for veterans.

OrbitDeck builds and source code are available at https://github.com/prstoetzer/OrbitDeck

[ANS thanks Paul Stoetzer, N8HM, AMSAT Executive Vice President and developer of OrbitDeck, for the above information]

AMSAT Remove Before Flight Key Tags Now Available
Yes, These are the Real Thing!
* <https://www.zazzle.com/amsat_car_flag-256716714380264543>*

Your $20 Donation Goes to Help Fly a Fox-Plus Satellite Includes First Class Postage (Sorry — U.S. Addresses Only) Order Today at https://www.amsat.org/product/amsat-remove-before-flight-keychain <https://www.amsat.org/product/amsat-remove-before-flight-keychain/>

Changes to AMSAT TLE Distribution for June 19, 2026

Two Line Elements or TLEs, often referred to as Keplerian elements or keps in the amateur community, are the inputs to the SGP4 standard mathematical model of spacecraft orbits used by most amateur tracking programs. Weekly updates are completely adequate for most amateur satellites. TLE bulletin files are updated daily in the first hour of the UTC day. New bulletin files will be posted immediately after reliable elements become available for new amateur satellites. More information may be found at https://www.amsat.org/keplerian-elements-resources/ <https://www.amsat.org/keplerian-elements-resources/>.

There are no changes to this week's TLE distribution.
General Perturbations Data Support

AMSAT is pleased to announce that modern forms of what are called General Perturbations data are being disseminated via modern formats including

JSON, XML and KVN at https://newark192.amsat.org/gpdata/current/. The reason this change is being made is that we are running out of 5-digit catalog numbers and the TLE format is not viable for satellites launched after July of this year. See https://celestrak.org/NORAD/documentation/gp-data-formats.php for details.

These data are presently considered in beta test for the next two months while hosted on the test server newark192.amsat.org, and we are very open to community feedback at webmaster(a)amsat.org. Testers may experience outages and errors while we make improvements. We intend to put this into production on our main web server in July as we expect that satellites launched after this summer will require one of the new formats to accommodate longer object numbers. AMSAT will continue to publish TLE bulletins for satellites launched before July 2026 indefinitely.

[ANS thanks Joe Fitzgerald, KM1P, AMSAT Orbital Elements Manager, for the above information.]

[image: SDR Gen 2 Ad - 2026]

Dragon Returns Packed with Space Station Science

Scientists await a big splash in the Pacific Ocean as one of the most research-packed Dragon spacecraft to date returns, completing the 34th SpaceX commercial resupply mission to the International Space Station for NASA. Biological and materials samples, along with tested hardware, are heading back to research teams on Earth for further analysis, advancing NASA’s work to prepare humans for exploration beyond low Earth orbit and to deliver benefits back home.

NASA astronaut Jessica Meir prepares samples in the Life Sciences Glovebox to study how weightlessness affects crew blood clotting and immune function for the Megakaryocyte Flying-One investigation. (Photo Credit: NASA)

Some samples returning are for NASA’s Hematopoietic Stem Cell Expansion in Space: Pathfinder Investigation (InSPA-StemCellEX-H2), which seeks to use the microgravity environment to scale up the production of stems cells. On Earth, lab-produced blood stem cells lose their ability to form different cell types, like red and white blood cells that are critical to treating patients with certain blood diseases and cancers. In microgravity, researchers believe this ability will be better preserved while also growing these stem cells in greater numbers. The returning samples will undergo further analysis to determine if space-based efforts produce larger quantities of enhanced stem cells suitable for clinical use.

The team behind NASA’s Streptococcus pneumoniae (Spn) Infection of Cardiac Tissue (MVP Cell-09) experiment is awaiting the return of stem cell-derived heart tissues that were intentionally infected with a pneumonia-causing bacterium as part of ongoing microgravity research. Pneumonia increases the risk of heart disease, which is not fully understood. Because bacteria tend to become more active and virulent in microgravity, this experiment could amplify their effects, making it possible to detect cellular responses that cannot be observed on Earth.

NASA’s Megakaryocyte Flying-One (MeF1) samples are returning to Earth to help understand how large cells found in bone marrow, known as megakaryocytes, and the platelets they produce adapt to spaceflight. Megakaryocytes and platelets play important roles in the formation of blood clots and immune responses. The returning samples, including those taken from astronauts, could show us how the human immune system reacts aboard the space station and help prepare for future exploration missions.

Semiconductor research samples as part of NASA’s In-Space Production of

Semimetal-Semiconductor Composite Bulk Crystals in Microgravity (SUBSA-InSPA-SSCug) investigation are returning to Earth for further analysis. This study manufactured semimetal-semiconductor composite alloy crystals in space, which have applications in many electronics, including sensors and lasers. Researchers believe microgravity could enable the production of significantly greater and higher-quality crystals, supporting the development of next-generation semiconductor technologies.

Additional experiments being returned include NASA’s Zero Boil-Off Tank Noncondensables (ZBOT-NC) investigation, NASA’s DNA Nano Therapeutics-3 space-assembled DNA-inspired materials, NASA’s InSPA-Sachi Nanoligomer investigation, European Space Agency’s (ESA’s) Green Bone investigation, NASA’s 3D Bone Marrow Analog research, and NASA’s InSPA-Auxilium Bioprinter-Cell Printing is investigation. To read more about these experiments, see the full article at https://www.nasa.gov/missions/station/iss-research/nasas-spacex-crs-34-dragon-returns-packed-with-space-station-science/
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[ANS thanks NASA for the above information.]

ARISS News

Amateurs and others around the world may listen in on contacts between amateurs operating in schools and allowing students to interact with astronauts and cosmonauts aboard the International Space Station. The downlink frequency on which to listen is 145.800 MHz worldwide.
Scheduled Contacts

+ Recently Completed

Youth on the Air Camp 2026 (YOTA Camp 2026), Huntsville, AL, direct via W4Y
The ISS callsign was NA1SS
The scheduled crewmember was Chris Williams, KJ5GEW
The ARISS mentor was K4RGK
Contact was successful: Thu 2026-06-18 16:36:25 UTC 37 degrees maximum elevation
Congratulations to the Youth on the Air Camp 2026 students, Chris, mentor Youth on the Air Camp 2026, and ground station W4Y!
Watch for Livestream at https://www.youtube.com/live/eVo288DAH4U

+ Upcoming Contacts

National STEM Festival, Washington, DC, telebridge via VK6MJ
The ISS callsign is presently scheduled to be NA1SS
The scheduled crewmember is Chris Williams, KJ5GEW
The ARISS mentor is W4NTR/ KM4YHZ
Contact is go for: Thu 2026-06-25 13:31:42 UTC 49 degrees maximum elevation

Many times, a school makes a last-minute decision to do a Livestream or runs into a last-minute glitch requiring a change of the URL, but we at ARISS may not get the URL in time for publication. You can always check https://live.ariss.org/ to see if a school is Livestreaming.

[image: ARISS News]

There is a lot of traffic on Facebook and on other social media sites with people asking why they are not hearing the crew make general contacts. First off the crew is very busy on the ISS and they simply may not have the time to just pick up the microphone and talk. Also, one needs to be aware of their normal daily schedule:

Wakeup to Workday start= 1.5 hours
Workday start to Workday end=12 hours

Workday end to Sleep= 2 hours
Sleep to wakeup= 8.5 hours

The crew’s usual waking period is 07:30 – 19:30 UTC. The most common times to find a crew member making casual periods are about one hour after waking up and about an hour before sleeping, when they have personal time. They’re usually free most of the weekend, as well.

The APRS packet system is also active (437.825 MHz up & down).

Ham TV is currently transmitting a test signal at 2395.00 MHz. *The color bar test generator portion of the Ham TV system is experiencing unexpected technical issues. ARISS is working to troubleshoot the issue with NASA’s payloads support team and the ISS crew.*

As always, if there is an EVA, a docking, or an undocking; the ARISS radios are turned off as part of the safety protocol. *Radios will be powered down in support of an upcoming spacewalk in late June: Power down: June 29 at 15:15 UTC Power up: July 1 at 10:15 UTC*

Note, all times are approximate. It is recommended that you do your own orbital prediction or start listening about 10 minutes before the listed time.

The latest information on the operation mode can be found at https://www.ariss.org/current-status-of-iss-stations.html

The latest list of frequencies in use can be found at https://www.ariss.org/contact-the-iss.html

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information.]

AMSAT Ambassador Activities

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.
[image: AMSAT Ambassador News Logo]Scheduled Events

June 27, 1800 UTC – June 28, 2100 UTC, 2026
ARRL Field Day
https://www.amsat.org/field-day/

July 11, 2026
Moon Day
Frontiers of Flight Museum
6911 Lemmon Ave.
Dallas, TX 75209
https://flightmuseum.com/events/moonday/
N5HYP

October 8-11, 2026
44th AMSAT Space Symposium and Annual Membership Meeting
Crowne Plaza JAX Airport
14670 Duval Road
Jacksonville, FL 32218
Details to follow

For more information go to: https://www.amsat.org/ambassador/

[ANS thanks Bo Lowrey, W4FCL, Director – AMSAT Ambassador Program, for the above information.]

Satellite Shorts from All Over

+ HamSat (free) and HamSat Pro (one-time purchase), iOS satellite tracking apps for iPhone/iPad by Vasco Barreiros, CT1OY, have recently been updated with new features, including compatibility with Apple Watch. HamSat is available on the iPhone App Store. (ANS thanks Peter Green, GØABI, for the above information.)

+ The upper stage from a commercial Chinese rocket that launched last week has broken apart in space, spreading debris in a heavily trafficked part of low-Earth orbit — home to the International Space Station and a significant portion of SpaceX's Starlink broadband network. The breakup occurred shortly after the Zhuque-2E rocket reached orbit on June 9 with two satellites providing direct-to-cell communications, perhaps around the time the upper stage was expected to perform a disposal burn. The U.S. Space Force confirmed the breakup event stating, "There are currently no threats to human spaceflight."* (ANS thanks ArsTechica for the above information. Read the full article at https://arstechnica.com/space/2026/06/a-chinese-rocket-breaks-apart-dangerously-close-to-the-starlink-constellation/ <https://arstechnica.com/space/2026/06/a-chinese-rocket-breaks-apart-dangerously-close-to-the-starlink-constellation/>.)*

+ A new paper from researchers at NASA's Ames Research Center in California reports that 73.3 percent of images the agency's new SPHEREx space telescope collected between May and September of last year were contaminated by at least one artificial satellite trail. Typically this type of light pollution is associated with ground telescopes. But SPHEREx is an orbital satellite about 700 kilometers above the Earth's surface. Apparently even that wasn't enough to escape from the light trails. *(ANS thanks IEEE Spectrum for the above information. See the full article at https://spectrum.ieee.org/satellite-light-pollution-spherex-hubble <https://spectrum.ieee.org/satellite-light-pollution-spherex-hubble>.)*

+ A dazzling fireball streaked through the skies above the Midwest on June 14, crashing through Earth's atmosphere at a staggering 56,000 mph (90,123 km.h per hour) before burning up. More than 500 witnesses reported the event to the American Meteor Society,— some of whom uploaded footage of the fiery event. NASA's all-sky camera network also captured the fireball from three locations. *(ANS thanks Space.com for the above information. Read the full article, with some of the images, at https://www.space.com/stargazing/meteor-showers/watch-a-fireball-burn-a-300-mile-path-above-the-midwest-us-video <https://www.space.com/stargazing/meteor-showers/watch-a-fireball-burn-a-300-mile-path-above-the-midwest-us-video>.)*

+ An Ariane 6 with upgraded solid rocket boosters successfully launched three dozen Amazon Leo satellites June 17. So far, 367 Amazon Leo satellites have launched on Ariane 6, Atlas V and Falcon 9. However, there is only one more Atlas 5 launch for Amazon Leo, scheduled for July 3, forcing Amazon to lean more on Arianespace. The company still has a July 2029 deadline to deploy the full constellation, as part of the FCC's waiver decision on June 5. *(ANS thanks SpaceNews for the above information. If registered with a SpaceNews account, see the full article at https://spacenews.com/upgraded-ariane-6-launches-amazon-leo-satellites/ <https://spacenews.com/upgraded-ariane-6-launches-amazon-leo-satellites/>.)*

+ NASA Administrator Jared Isaacman, responding to questions about the agency's selection of an all-male crew for the Artemis 3 mission, said the astronauts were chosen based solely on their experience, skill sets and availability. Isaacman strongly defended the crew selection, saying he had "personally been to space twice with 50 percent female crews. My closest advisors and some of the smartest engineers I know are women. In our latest NASA leadership organization, nearly 50 percent of the center directors and

mission directorate leadership are women.” *(ANS thanks SpaceflightNow for the above information. Read the full article at https://spaceflightnow.com/2026/06/10/nasa-chief-defends-selection-of-all-male-artemis-iii-crew/ <https://spaceflightnow.com/2026/06/10/nasa-chief-defends-selection-of-all-male-artemis-iii-crew/>.)*

Join AMSAT today at https://launch.amsat.org/

In addition to regular membership, AMSAT offers membership to:

- Societies (a recognized group, clubs or organization).
- Students enrolled in at least half-time status are eligible for free membership to age 25.
- Memberships are available for annual and lifetime terms.

Contact info [at] amsat.org for additional membership information.

73 and remember to help Keep Amateur Radio in Space!

This week’s ANS Editor,

Mark Johns, KØJM
mjohns [at] amsat.org <http://amsat.org>

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